

Yuan-Sheng Huang
Serial no. 10/004,614
Filed 11/1/2001
Attorney docket no. 67,200-565

Page 2

In the claims:

1. (currently amended) A semiconductor dry etching system comprising:
a plasma chamber in which at least polymerizing gas is introduced, excess polymer forming and subsequently peeling off inner vertical walls of the chamber and falling down due to gravity; and,

a electrically biased mechanism to hold a semiconductor wafer at a top of the plasma chamber, such that the polymer is electrostatically attracted to the wafer, positioning of the wafer at the top of the chamber preventing the excess polymer from falling onto the wafer, the electrically biased mechanism comprising:

a wafer lifter positioned at the top of the plasma chamber, having sidewalls defining a first diameter greater than a diameter of the wafer and a bottom having a hole therein having a second diameter less than the first diameter and less than the diameter of the wafer, the wafer exposed from the bottom of the wafer lifter through the hole therein,

wherein the wafer rests on an inner top surface of the bottom of the wafer lifter that is parallel to an outer bottom surface of the bottom of the wafer lifter, the inner top surface and the outer bottom surface of the bottom of the wafer lifter both perpendicular to the sidewalls of the wafer lifter defining the first diameter greater than the diameter of the wafer.

2. (cancelled)

3. (previously presented) The system of claim 1, wherein the electrically biased mechanism further comprises a wafer chuck.

4. (original) The system of claim 3, wherein the electrically biased mechanism further comprises a bias supply to electrically bias at least one of the wafer chuck and the wafer lifter.

Yuan-Sheng Huang
Serial no. 10/004,614
Filed 11/1/2001
Attorney docket no. 67,200-565

Page 3

5. (previously presented) The system of claim 4, wherein the wafer lifter is vertically movable between a lower position to an upper position, where the lower position promotes loading of the wafer to the wafer lifter, and the upper position enables the bias supply to electrically couple with the wafer chuck for biasing of the wafer.
6. (cancelled)
7. (original) The system of claim 1, further comprising one or more coils to induce a varying magnetic field within the chamber.
8. (previously presented) The system of claim 7, wherein the one or more coils comprise one or more induction coils.
9. (previously presented) The system of claim 7, wherein the one or more coils comprise one or more electromagnetic coils.
10. (original) The system of claim 7, further comprising one or more multi-pole magnets cooperating with the one or more coils to assist inducement of the varying magnetic field within the chamber.
11. (previously presented) The system of claim 1, further comprising a dielectric window at a bottom of the chamber.

Yuan-Sheng Huang
Serial no. 10/004,614
Filed 11/1/2001
Attorney docket no. 67,200-565

Page 4

12. (currently amended) A semiconductor dry etching system comprising:
a plasma chamber in which at least polymerizing gas is introduced;
a wafer lifter to hold a semiconductor wafer upside-down at a top of the plasma chamber, the wafer lifter positioned at the top of the plasma chamber, having sidewalls defining a first diameter greater than a diameter of the wafer and a bottom having a hole therein having a second diameter less than the first diameter and less than the diameter of the wafer, the wafer exposed from the bottom of the wafer lifter through the hole therein; and,
a bias supply to bias the wafer chuck and the wafer, such that polymer is electrostatically attracted to the wafer,
wherein the wafer rests on an inner top surface of the bottom of the wafer lifter that is parallel to an outer bottom surface of the bottom of the wafer lifter, the inner top surface and the outer bottom surface of the bottom of the wafer lifter perpendicular to the sidewalls of the wafer lifter defining the first diameter greater than the diameter of the wafer.
13. (previously presented) The system of claim 12, further comprising a wafer chuck.
14. (cancelled)
15. (original) The system of claim 12, wherein the wafer lifter is vertically movable between a lower position to an upper position, where the lower position promotes loading of the wafer, and the upper position enables the bias supply to electrically couple with the wafer for biasing thereof.
16. (original) The system of claim 12, further comprising one or more coils to induce a varying magnetic field within the chamber.

Yuan-Sheng Huang
Serial no. 10/004,614
Filed 11/1/2001
Attorney docket no. 67,200-565

Page 5

17. (previously presented) The system of claim 16, wherein the one or more coils comprise one or more induction coils coupled.
18. (original) The system of claim 16, further comprising one or more magnets cooperating with the one or more coils to assist inducement of the varying magnetic field within the chamber.
19. (previously presented) The system of claim 12, further comprising a dielectric window at a bottom of the chamber.
20. (withdrawn) A method comprising:
lowering a wafer lifter positioned over a plasma chamber of a semiconductor dry etching system;
loading a semiconductor wafer upside-down into the wafer lifter;
raising the wafer lifter to electrically couple the wafer with a cathode of the semiconductor dry etching system; and,
performing dry etching semiconductor processing on the wafer.